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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,145	07/11/2003	Zhu Feng	2855/96	4141

7590 08/22/2005

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EXAMINER	
HABERMEHL, JAMES LEE	
ART UNIT	**PAPER NUMBER**
2651	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/618,145	FENG ET AL.	
	Examiner	Art Unit	
	James L. Habermehl	2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 June 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-12,14-21 and 23-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-12,14-21 and 23-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. This Office action is in response to amendment filed 13 June 2005, which papers have been placed of record in the file.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-2, 4, 7-9, 11-12, 14, 16-18, 20-21, 23, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonin et al. ('517) in view of Murdock et al. Regarding claims 1, 11, and 20, Bonin et al. ('517) Figures 1-3 and 5 show a magnetic storage medium (106), a suspension (112), a slider (110) coupled to the suspension, a magnetic read/write head (236) coupled to the slider (201), a charging electrical pad (336) coupled to the slider separate from the magnetic head, and a charging electrical conductor (320) coupled to the electrical pad to apply an electrical charge to the slider (300). Bonin et al. ('517) shows an electrical pad separate from the magnetic head but does not explicitly show it is coupled to the slider during a wafer fabrication process, and doesn't show a first set of electrical pads to read data and a second set of electrical pads to write data.

Bonin et al. ('517) is silent as to how its electrical pad is formed on the slider; however, paragraph 0043 does show fabricating the pole tip 302 and magnetic head 308 in layers on a doped silicon slider. Murdock et al. Figure 2 shows elements 42a-42d are electrical pads coupled to the slider during a wafer fabrication process (col. 4, lines 53-55). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Bonin et al. to enable use of the teaching of Murdock et al. of coupling electrical pads to the slider during the wafer fabrication process, the motivation being to perform all the fabrication during the same process, thus simplifying manufacture of the slider.

Murdock et al. et al. Figure 2 and 42a-42d show a first set of electrical pads to read data and a second set of electrical pads to write data in order to enable reading and writing data from and to the magnetic disk. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Bonin et al. ('517) to enable use of the teaching of Murdock et al. to provide two sets of pads, the motivation being to enable reading and writing data from and to the magnetic disk.

Regarding claims 2, 4, 12, 14, 21, and 23, Bonin et al. ('517) Figure 5 shows the pad is coupled to the slider trailing edge, the slider is coupled to a suspension.

Regarding claims 7-9, 16-18, and 26-28, Bonin et al. ('517) Figure 5 and paragraphs 0044 and 0046 show the slider connected to an electronic feedback system to monitor an environmental condition of the slider, with the charging electrical conductor applying the electrical charge based upon a flying height of the slider, which is based upon the surrounding temperature of the slider that causes head protrusion.

4. Claims 10, 19, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonin et al. ('517) in view of Murdock et al. The combination as disclosed above meets all the additional limitations for these claims for the reasons given above regarding claims 1, 11, and 20, except as disclosed above it does not show the electrical charge ranges from 0.1 to 5 volts. Bonin et al. discloses varying the electrical charge by an undisclosed amount to vary the fly height to compensate for magnetic head pole tip protrusion, although paragraph 0057 shows one embodiment where the electrical charge is 3.8 volts to maintain a selected fly height, which is within the claimed range of values. It would have been obvious to one of ordinary skill in the art at the time the invention was made to vary the electrical charge in the range from 0.1 to 5 volts, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

5. Claims 5-6, 14-15, and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bonin et al. ('517) in view of Murdock et al. as disclosed above, and further in view of Hiraoka et al. The combination as disclosed above meets all the additional limitations for these claims for the reasons given above regarding claims 4, 14, and 24, except as disclosed above it does not show the slider is electrically isolated from the suspension and coupled to the suspension using an adhesive with a high electrical resistance. Bonin et al. ('517) Figures 5-8 and paragraph 0047 show the disk is grounded and provides the ground return path for both the flying height sensor and the capacitive flying height actuator. Although Bonin et al. ('517) does not explicitly disclose any details regarding electrical isolation of the slider, because the slider is

charged then necessarily there must exist in the design of Bonin et al. electrical isolation at some point between the slider and the ground return path of the energization source 338, which would have to be some element with a high electrical resistance.

Hiraoka et al. Figures 14-15B and col. 11, lines 38-63 show in the related art of head suspension assembly electrically isolating the slider from the suspension using an adhesive with a high electrical resistance. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the high electrical resistance adhesive of Hiraoka et al. into the system of Bonin et al. ('517) since the examiner takes Official Notice of the equivalence of electrical isolation in the adhesive bonding the slider to the suspension and electrical isolation elsewhere in the suspension or actuator for their use in the art of controlling slider flying height using a charged slider, and the selection of any of these known equivalents to electrically isolate the slider would be within the level of ordinary skill in the art.

Response to Arguments

6. Applicant's arguments with respect to claims 1, 11, and 20 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James L. Habermehl whose telephone number is (571)272-7556. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (571)272-7843. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Habermehl/jlh
12 Aug 05

DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
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